Certificate No:
TAK00002A8

TYPE APPROVAL DESIGN CERTIFICATE

This is to certify:

That the Plastic Piping System, Thermoplastic

with type designation(s)
Tubing made of APE (Advanced PE), Anti spark PU and FEP (Fluoropolymer), Push-In Fittings LF 3800, LIQUIfit

Issued to
PARKER HANNIFIN MANUFACTURING FRANCE SAS
RENNES, **France**

is found to comply with
DNV class programme DNV-CP-0072 – Type approval – Thermoplastic piping systems

Application :

Cooling water and compressed air systems installed in metallic cabinets of pipe class III.

Issued at **Hamburg** on **2023-11-14**
This Certificate is valid until **2028-11-13** .
DNV local unit: **France CMC**

Approval Engineer: **Hagen Markus**

for **DNV**

Sven Klinger
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Advanced Polyethylene (APE) Tubing
High quality polyethylene: 50% reticulated PE, 50% low density PE (44 Shore D)
Reference: Catalogue CAT/0550/UK Parker Legris Technical Tubing & Hose, Page 26, 27

Anti-spark PU Tubing
PU single layer - with Parker Legris push-in fittings.
Reference: Catalogue CAT/0550/UK Parker Legris Technical Tubing & Hose, page 24, 25

FEP Tubing
Fluorinated ethylene propylene (pure) 55 Shore D
Reference: Catalogue CAT/0550/UK Parker Legris Technical Tubing & Hose, page 28, 29.

Tubes	Advanced PE	Anti-spark PU	FEP
Size range O.D. mm	6, 8, 10, 12	6, 8, 10, 12	6, 8, 10, 12
Compatible Fluids	Coolants (water based), compressed air		
Nominal pressure PN	10.0bar[1,2]	10.0bar[1,2]	7.65bar[1,2]
Working Temperature	-40°C to +60°C	-20°C to +60°C	-40°C to +60°C

Notes
1 Safety factor 4, 20°C on aged tubing.
2 Reduction of working pressure acc. to working temperature specified in Parker catalogue CAT/0550/UK is to be observed.

Tube fitting

Parker Legris push-in fittings
- LIQUIfit p plastic/metallic fittings acc. to catalogue BUL/020/UK
- LF 3800 stainless steel 316L acc. to CAT/0214/UK (2020), pages 71 to 76 “LF 3800Push-In Fittings / Stud Fittings”.

Application/Limitation

This Type Approval Design certificate is valid for installation of the Advanced Polyethylene (APE), Anti-spark PU and FEP tubing in combination with Push-In Fittings of type LIQUIfit and LF3800 in water-based coolant systems and compressed air installed in metallic cabinets.

This Type Approval covers design(s) only. i.e. the Type Approval is not valid for the final product but may be used as basis for obtaining a product certificate.

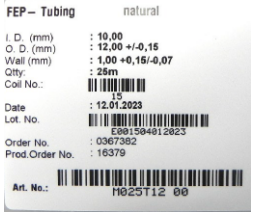
Type Approval documentation

Tests carried out

Internal Parker Test standard
Ageing test (500hours) with cooling fluid @6bar, Initial / Final Leak test, Initial/ Final burst test @ 20 / 50 / 70°C.

Marking of product

Tubes

Scope	Example
Polyurethane (PU)	
Single Layer Anti spark (PU)	
FEP not marked tubing, marking is on the box	

Tube fitting

Scope	Example
Trademark	L for Legris 
Material	316L
Manufacturing batch	 OA

Periodical assessment

Not applicable.

END OF CERTIFCATE